

PHYSICAL PROPERTIES

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TABLE 9. DEVIATION OF EQUATION (6) FROM EXPERIMENTAL DATA WHEN USING GENERAL COEFFICIENTS OF TABLE 8

Reference	Temperature (°C.)	Average Deviation		Maximum Deviation	
		Units	%	Units	%
Huckaba and Keyes ¹⁹	0	0.00034	0.026	0.0006	0.058
Giguère and Geoffrion ¹⁶	0	0.0015	0.117	0.0025	0.184
Kubaschewski and Weber ²⁰	18	0.0023	0.195	0.0056	0.478
Easton, Mitchell, and Wynne-Jones ²¹	25	0.0003	0.022	0.0007	0.056
Easton, Mitchell, and Wynne-Jones ²¹	96	0.0008	0.067	0.0016	0.144

TABLE 10. DENSITY AND MEAN COEFFICIENTS OF CUBICAL EXPANSION OF HYDROGEN PEROXIDE SOLUTIONS AT 0 AND 25°C.

Wt. % H ₂ O ₂	Density, ρ , g./cc.		Mean Coefficient* of Cubical Expansion, β , °C. ⁻¹ × 10 ⁴	
	0°C. ¹⁹	25°C. ²¹	from 0 to 25°C. ¹⁹	from 25 to 96°C. ²¹
0	0.9998	0.9971	0.83	5.25
5	1.0193	1.0145	1.97	5.57
10	1.0393	1.0324	2.92	5.91
15	1.0598	1.0507	3.61	6.26
20	1.0804	1.0694	4.21	6.56
25	1.1014	1.0885	4.70	6.82
30	1.1226	1.1081	5.14	7.05
35	1.1441	1.1282	5.50	7.26
40	1.1661	1.1487	5.83	7.46
45	1.1883	1.1698	6.11	7.64
50	1.2110	1.1914	6.36	7.80
55	1.2342	1.2137	6.57	7.93
60	1.2579	1.2364	6.77	8.04
65	1.2822	1.2598	6.95	8.15
70	1.3071	1.2839	7.11	8.24
75	1.3326	1.3086	7.26	8.34
80	1.3589	1.3339	7.40	8.44
85	1.3858	1.3600	7.53	8.50
90	1.4136	1.3867	7.65	8.53
95	1.4421	1.4142	7.75	8.56
100	1.4709	1.4425	7.85	8.58

* To be used in equation (4); for temperatures below 0°C. use data of Table 2.

provides coefficients of cubical expansion for temperatures below 0°C. Alternately, densities may be obtained graphically from Figure 1. Linear interpolation between values shown in Table 10 and read from Figure 1 is reliable to 1 part in 1000. Routine volumetric or densitometric analysis is generally not carried to superior precision.

**GOVERNMENT
EXHIBIT**

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